

ABSTRACT OF THE DISCLOSURE

A method and apparatus for measuring the pulse width of a narrow optical pulse, particularly in a multi-mode optical fiber. A spectrograph and streak camera are combined to record optical intensity data in a 2-dimensional array resolving both wavelength and temporal dependence of the optical pulse. The data is analyzed to calculate the chromatic dispersion and then to remove it. For example, the data in different wavelength windows are time shifted relative to each other by the amount of the chromatic dispersion so that all windows have approximately the same temporal dependence. The correction may numerically establish time offsets producing the maximum cross-correlation between wavelength windows. The corrected data may then be summed over optical wavelength, and the corrected time-dependent data is further analyzed to establish optical pulse width and impulse response of the fiber. Thereby, a laser diode with relatively large spectral width can characterize a high-bandwidth fiber.